



Iowa Department of Natural Resources
Underground Storage Tanks Section
502 East 9th Street
Des Moines, IA 50319-0034

Secondary Containment Testing Report Form

This form is intended for use by UST Professionals performing periodic testing of UST secondary containment systems. Secondary containment systems must be liquid tight and must be inspected and tested every two years [567-135.3(9)"g"]. Use the appropriate pages of this form to report results for all components tested. The completed form, written test procedures, and printouts from tests (if applicable), should be provided to the facility owner/operator and available for review by DNR and compliance inspectors.

1. FACILITY INFORMATION									
Facility Name:						Registration No.			
Contact:					Phone:				
Address:									
City:					State:			ZIP:	
2. TESTING CONTRACTOR INFORMATION									
Company Name:						Date of Testing:			
Technician Conducting Test:									
License Type:					License Number:				
MANUFACTURER TRAINING									
Manufacturer	Component(s)				Date Training Expires				
3. SUMMARY OF TEST RESULTS									
Component	Pass	Fail	Not Tested	Repairs Made	Component	Pass	Fail	Not Tested	Repairs Made
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If hydrostatic testing was performed, describe what was done with the water after completion of tests:

CERTIFICATION OF TECHNICIAN RESPONSIBLE FOR CONDUCTING THIS TESTING

To the best of my knowledge, the facts stated in this document are accurate and in full compliance with legal requirements

Technician's Signature: _____

Date: _____

4. TANK ANNULAR TESTING				
Test Method Developed By:	<input type="checkbox"/> Tank Manufacturer <input type="checkbox"/> Industry Standard <input type="checkbox"/> Professional Engineer		<input type="checkbox"/> Other (<i>Specify</i>):	
Test Method Used:	<input type="checkbox"/> Pressure <input type="checkbox"/> Vacuum <input type="checkbox"/> Hydrostatic		<input type="checkbox"/> Other (<i>Specify</i>):	
Test Equipment Used:			Equipment Resolution:	
	Tank #	Tank #	Tank #	Tank #
Tank Capacity:				
Tank Material:				
Tank Manufacturer:				
Product Stored:				
Wait time between applying pressure/vacuum/water and starting test:				
Test Start Time:				
Initial Reading (R_i):				
Test End Time:				
Final Reading (R_F):				
Test Duration:				
Change in Reading ($R_F - R_i$):				
Pass/Fail Threshold or Criteria:				
TEST RESULTS:				
Was sensor removed for testing?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Was sensor properly replaced and verified functional after testing?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA

COMMENTS— (*include information on repairs made prior to testing, and recommended follow-up for failed tests*)

5. SECONDARY PIPE TESTING				
Test Method Developed By:	<input type="checkbox"/> Piping Manufacturer	<input type="checkbox"/> Industry Standard	<input type="checkbox"/> Professional Engineer	
	<input type="checkbox"/> Other (Specify):			
Test Method Used:	<input type="checkbox"/> Pressure	<input type="checkbox"/> Vacuum	<input type="checkbox"/> Hydrostatic	
	<input type="checkbox"/> Other (Specify):			
Test Equipment Used:			Equipment Resolution:	
	Piping Run #	Piping Run #	Piping Run #	Piping Run #
Piping Material:				
Piping Manufacturer:				
Piping Diameter:				
Length of Piping Run:				
Product Stored:				
Method and location of piping-run isolation:				
Wait time between applying pressure/vacuum/water and starting test:				
Test Start Time:				
Initial Reading (R_i):				
Test End Time:				
Final Reading (R_F):				
Test Duration:				
Change in Reading ($R_F - R_i$):				
Pass/Fail Threshold or Criteria:				
TEST RESULTS:	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

COMMENTS – (include information on repairs made prior to testing, and recommended follow-up for failed tests)

6. PIPING SUMP TESTING				
Test Method Developed By:	<input type="checkbox"/> Sump Manufacturer <input type="checkbox"/> Industry Standard <input type="checkbox"/> Professional Engineer <input type="checkbox"/> Other (Specify):			
Test Method Used:	<input type="checkbox"/> Pressure <input type="checkbox"/> Vacuum <input type="checkbox"/> Hydrostatic <input type="checkbox"/> Other (Specify):			
Test Equipment Used:			Equipment Resolution:	
	Sump #	Sump #	Sump #	Sump #
Sump Diameter:				
Sump Depth:				
Sump Material:				
Height from Tank Top to Top of Highest Piping Penetration:				
Height from Tank Top to Lowest Electrical Penetration:				
Condition of sump prior to testing:				
Does turbine shut down when sump sensor detects liquid (both product and water)?*	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Turbine shutdown response time				
Wait time between applying pressure/vacuum/water and starting test:				
Test Start Time:				
Initial Reading (R _I):				
Test End Time:				
Final Reading (R _F):				
Test Duration:				
Change in Reading (R _F -R _I):				
Pass/Fail Threshold or Criteria:				
TEST RESULTS:				
Is there a liquid phase sensor in the sump?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Does the sensor alarm when either product or water is detected?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Is the alarm operational?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Is the sensor located in the lowest part of the sump?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Was sensor removed for testing?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Was sensor properly replaced and verified functional after testing?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA

COMMENTS – (include information on repairs made prior to testing, and recommended follow-up for failed tests)

7. UNDER-DISPENSER CONTAINMENT (UDC) TESTING				
Test Method Developed By:	<input type="checkbox"/> UDC Manufacturer <input type="checkbox"/> Industry Standard <input type="checkbox"/> Professional Engineer		<input type="checkbox"/> Other (Specify):	
Test Method Used:	<input type="checkbox"/> Pressure <input type="checkbox"/> Vacuum <input type="checkbox"/> Hydrostatic		<input type="checkbox"/> Other (Specify):	
Test Equipment Used:			Equipment Resolution:	
	UDC #	UDC #	UDC #	UDC #
UDC Manufacturer:				
UDC Material:				
UDC Depth:				
Height from UDC Bottom to Top of Highest Piping Penetration:				
Height from UDC Bottom to Lowest Electrical Penetration:				
Condition of UDC prior to testing:				
Does turbine shut down when UDC sensor detects liquid (both product and water)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Turbine shutdown response time				
Wait time between applying pressure/vacuum/water and starting test				
Test Start Time:				
Initial Reading (R _I):				
Test End Time:				
Final Reading (R _F):				
Test Duration:				
Change in Reading (R _F -R _I):				
Pass/Fail Threshold or Criteria:				
TEST RESULTS:				
Is there a sensor in the sump?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Does the sensor alarm when either product or water is detected?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Is the alarm operational?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Is the sensor located in the lowest part of the sump?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Was sensor removed for testing?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Was sensor properly replaced and verified functional after testing?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA

COMMENTS – (include information on repairs made prior to testing, and recommended follow-up for failed tests)

8. TANK TOP SUMP TESTING				
Facility is Not Equipped With Fill Riser Containment Sumps <input type="checkbox"/>				
Fill Riser Containment Sumps are Present, but were Not Tested <input type="checkbox"/>				
Test Method Developed By:	<input type="checkbox"/> Sump Manufacturer	<input type="checkbox"/> Industry Standard	<input type="checkbox"/> Professional Engineer	
	<input type="checkbox"/> Other (Specify):			
Test Method Used:	<input type="checkbox"/> Pressure	<input type="checkbox"/> Vacuum	<input type="checkbox"/> Hydrostatic	
	<input type="checkbox"/> Other (Specify):			
Test Equipment Used:			Equipment Resolution:	
	Fill Sump #	Fill Sump #	Fill Sump #	Fill Sump #
Sump Diameter:				
Sump Depth:				
Height from Tank Top to Top of Highest Piping Penetration:				
Height from Tank Top to Lowest Electrical Penetration:				
Condition of sump prior to testing:				
Sump Material:				
Wait time between applying pressure/vacuum/water and starting test:				
Test Start Time:				
Initial Reading (R _i):				
Test End Time:				
Final Reading (R _f):				
Test Duration:				
Change in Reading (R _f -R _i):				
Pass/Fail Threshold or Criteria:				
TEST RESULTS:				
Is there a sensor in the sump?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Does the sensor alarm when either product or water is detected?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Was sensor removed for testing?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Was sensor properly replaced and verified functional after testing?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA

COMMENTS – (include information on repairs made prior to testing, and recommended follow-up for failed tests)

9. SPILL BUCKET TESTING

This form is intended for use by contractors performing testing of UST spill containment structures. These structures must be liquid tight. The completed form should be provided to the facility owner/operator and available for review by DNR and compliance inspectors.

FACILITY INFORMATION

Facility Name:	Date of Testing:
Facility Address:	
Facility Contact:	Phone:
Date Local Agency Was Notified of Testing :	
Name of Local Agency Inspector (if present during testing):	

TESTING CONTRACTOR INFORMATION

Company Name:
Technician Conducting Test:
Credentials: <input type="checkbox"/> CSLB Contractor <input type="checkbox"/> ICC Service Tech. <input type="checkbox"/> SWRCB Tank Tester <input type="checkbox"/> Other (Specify)
License Number(s):

SPILL BUCKET TESTING INFORMATION

Test Method Used:	<input type="checkbox"/> Hydrostatic	<input type="checkbox"/> Vacuum	<input type="checkbox"/> Other (Specify) :	
Test Equipment Used:	Equipment Resolution:			
Identify Spill Bucket (By Tank Number, Stored Product, etc.)	TANK 1	TANK 2	TANK 3	TANK 4
Bucket Installation Type:	<input type="checkbox"/> Direct Bury <input type="checkbox"/> Contained in Sump	<input type="checkbox"/> Direct Bury <input type="checkbox"/> Contained in Sump	<input type="checkbox"/> Direct Bury <input type="checkbox"/> Contained in Sump	<input type="checkbox"/> Direct Bury <input type="checkbox"/> Contained in Sump
Bucket Diameter:				
Bucket Depth:				
Wait time between applying vacuum/water and start of test:				
Test Start Time (T_I):				
Initial Reading (R_I):				
Test End Time (T_F):				
Final Reading (R_F):				
Test Duration ($T_F - T_I$):				
Change in Reading ($R_F - R_I$):				
Pass/Fail Threshold or Criteria:				
TEST RESULTS:	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

COMMENTS – (include information on repairs made prior to testing, and recommended follow-up for failed tests)

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CERTIFICATION OF TECHNICIAN RESPONSIBLE FOR CONDUCTING THIS TESTING

I hereby certify that all the information contained in this report is true, accurate, and in full compliance with legal requirements.

Technician's Signature: _____

10. RESULTS OF VACUUM / PRESSURE MONITORING EQUIPMENT TESTING (CONTINUOUS INTERSTITIAL LINE / TANK MONITORING METHOD)	
<i>This page should be used to document testing and servicing of vacuum and pressure interstitial sensors. Interstitial sensing devices must be tested at least every two years for proper function [567—135.3(9)"g"(2)]. A copy of this form must be provided to the tank system owner/operator. This form must be available for review by DNR and compliance inspectors.</i>	
Manufacturer:	Model: System Type: <input type="checkbox"/> Pressure <input type="checkbox"/> Vacuum
SENSOR ID	
	Component(s) Monitored by this Sensor:
	Sensor Functionality Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail Interstitial Communication Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail
	Component(s) Monitored by this Sensor:
	Sensor Functionality Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail Interstitial Communication Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail
	Component(s) Monitored by this Sensor:
	Sensor Functionality Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail Interstitial Communication Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail
	Component(s) Monitored by this Sensor:
	Sensor Functionality Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail Interstitial Communication Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail
	Component(s) Monitored by this Sensor:
	Sensor Functionality Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail Interstitial Communication Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail
	Component(s) Monitored by this Sensor:
	Sensor Functionality Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail Interstitial Communication Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail
	Component(s) Monitored by this Sensor:
	Sensor Functionality Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail Interstitial Communication Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail
	Component(s) Monitored by this Sensor:
	Sensor Functionality Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail Interstitial Communication Test Result: <input type="checkbox"/> Pass <input type="checkbox"/> Fail
How was interstitial communication verified?	
<input type="checkbox"/> Leak Introduced at Far End of Interstitial Space <input type="checkbox"/> Gauge <input type="checkbox"/> Visual Inspection <input type="checkbox"/> Other (Describe Comments Below)	
Vacuum was restored to operating levels in all interstitial spaces: <input type="checkbox"/> Yes <input type="checkbox"/> No (If no, describe in comments below)	

COMMENTS:



NOTE: If the sensor successfully detects a simulated vacuum/pressure leak introduced in the interstitial space at the farthest point from the sensor, vacuum/pressure has been demonstrated to be communicating throughout the interstitial space.